

FINDING OF NO SIGNIFICANT IMPACT

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT FOR THE U.S. DEPARTMENT OF ENERGY, OAK RIDGE OPERATIONS IMPLEMENTATION OF A COMPREHENSIVE MANAGEMENT PROGRAM FOR THE STORAGE, TRANSPORTATION, AND DISPOSITION OF POTENTIALLY REUSABLE URANIUM MATERIALS

AGENCY: U.S. DEPARTMENT OF ENERGY (DOE)

ACTION: FINDING OF NO SIGNIFICANT IMPACT

SUMMARY: The U. S. DOE has completed a Programmatic Environmental Assessment (PEA) (DOE/EA-1393), which is incorporated herein by this reference. The purpose of the PEA is to assess potential environmental impacts of the implementation of a comprehensive management program for potentially reusable low enriched uranium (LEU), normal uranium (NU), and depleted uranium (DU). Approximately 14,200 MTU (Metric Tons of Uranium) of potentially reusable uranium is located at 158 sites. DOE has evaluated various options for interim centralized storage and interim consolidated storage at six DOE locations and two commercial sites. Ultimate disposition has also been evaluated, to the extent practicable, as part of this management program. Based on the results of the impacts analysis reported in the PEA, DOE has determined that the proposed action is not a major Federal action that would significantly affect the quality of the human environment within the context of the National Environmental Policy Act of 1969 (NEPA). Therefore, preparation of an Environmental Impact Statement (EIS) is not necessary, and DOE is issuing this Finding of No Significant Impact (FONSI).

PUBLIC AVAILABILITY OF PEA AND FONSI: The PEA and FONSI may be reviewed at, and copies of the document obtained from:

DOE Information Center
475 Oak Ridge Turnpike
Oak Ridge, Tennessee 37830
Phone: (865) 241-4780

U.S. Department of Energy
Carolyn Thomas, Senior Project Manager
Uranium Management Division
Post Office Box 2001
Oak Ridge, Tennessee 37831
Phone: (865) 576-2690

DOE Paducah Environmental Information Center
115 Memorial Drive
Paducah, Kentucky 42201
Phone: (270) 554-6979

DOE Savannah River Operations Office
Public Reading Room
171 University Parkway
Aiken, South Carolina 29801
Phone: (803) 725-2497

DOE Idaho Operations Office
Public Reading Room
INEEL Technical Library
1776 Science Center Drive
Idaho Falls, Idaho 83415
Phone: (208) 526-1244

DOE Portsmouth Environmental Information Center
3930 U.S. Route 23 South, Perimeter Road
Piketon, Ohio 45661
Phone: (740) 289-3317

DOE Headquarters FOIA/Public Reading Room
Room 1E-190
1000 Independence Avenue, SW
Washington, DC 20585
Phone: (202) 586-5955

FURTHER INFORMATION ON THE NEPA PROCESS: For further information on the NEPA process, contact:

David R. Allen
NEPA Compliance Officer
U.S. Department of Energy
Post Office Box 2001
Oak Ridge, Tennessee 37831
Phone: (865) 576-0411

BACKGROUND: The U.S. Department of Energy (DOE) proposes to implement a comprehensive management program to safely, efficiently, and effectively manage its potentially reusable low enriched uranium (LEU), normal uranium (NU), and depleted uranium (DU). Uranium materials, which are presently located at multiple sites, would be consolidated by transporting the materials to one or several storage locations, to facilitate ultimate disposition. Management would include the storage, transport, and ultimate disposition of these materials.

This action is needed because of DOE's current missions and functions; increasing budget pressures; the continuing need for good stewardship of resources, including materials in inventory; and continuing DOE attention to considerations of environment, safety, and health. Also, increased pressure on the federal budget requires that DOE take a closer look at materials management in order to ensure maximum cost effectiveness. This includes an examination of feasible uses of this material, consistent with DOE's mission, as well as an examination of management methods that are consistent with environmental requirements and budgetary constraints. DOE needs to implement a long-term (greater than 20 years) management plan for its inventory of potentially reusable LEU, NU, and DU.

DOE prepared a PEA to address the proposed action. The comprehensive management program addressed in this PEA looks at transportation, including preparation of uranium materials for safe shipment, long-term storage, maintenance and disposition. The PEA addresses 14,200 metric tons of uranium (MTU) materials thought to be potentially reusable; thus, uranium wastes are not part of the scope. Reusable is defined as "uranium material having an economically viable disposition path." The management plan covers uranium materials that are currently in the form of oxides, metals, and other stable compounds, and which are located at various sites around the United States. The plan does not include irradiated material, material in the form of uranium hexafluoride (UF₆), uranium that is enriched to 20% or greater in ²³⁵U, or uranium enriched in ²³³U.

Storage would occur until future sale or reuse alternatives are ready for decision-making. DOE evaluated in the PEA several proposed alternative DOE storage sites: the Portsmouth Gaseous Diffusion Plant (PORTS) in Ohio; the Paducah Gaseous Diffusion Plant (PGDP) in Kentucky; the Y-12 National Security Complex (Y-12) and East Tennessee Technology Park (ETTP) in Tennessee; the Savannah River Site (SRS) in South Carolina; and the Idaho National Engineering and Environmental Laboratory (INEEL) in Idaho. Also considered were western and eastern commercial sites. Approximately 14,200 MTU would be stored in either one (centralized) location or several (consolidated) locations based on the proximity of sites or the uranium product form. DOE now has potentially reusable uranium materials in 158 locations in the United States; however, the vast majority of these materials are located at only a few sites. These sites have additional uranium materials, which are not part of the Uranium Management Group (UMG) inventory and not addressed by the proposed action.

DOE proposes to implement a long-term (greater than 20 years) management plan for its inventory of potentially reusable LEU, NU, and DU. Uranium materials, which are presently located at multiple sites, are proposed to be consolidated by transporting the materials to one or several storage locations, to facilitate ultimate disposition. The management plan would address the packaging and transport of potentially reusable uranium materials from DOE sites and university loan/lease returns and their receipt and storage at a site under cognizance of the UMG. This action will also cover material shipment from the UMG and disposition. A Secretarial Determination is required, under certain circumstances, for uranium in the UMG inventory to be sold. Twenty years would provide time for additional reviews required for any future related actions that may be desirable to help accomplish ultimate disposition.

Since disposition of this material is currently undefined, a "bounding" analysis was performed to estimate the potential impacts from commercial processing of this material, use of this material in research activities, provision of this material to other Government agencies, and/or the sale (international/domestic) of this material upon completion of a Secretarial Determination. Disposition is a component of each of the action alternatives and impacts would differ based only on differences in transportation. Some wastes would be produced during this disposition process.

ALTERNATIVES: In addition to the proposed action, impacts were evaluated for the no action alternative. The no action alternative would continue ongoing storage activities at all existing facilities. This alternative includes the continued storage of uranium materials in existing facilities (DOE and private). Monitoring and surveillance of the uranium materials at each site would continue, as would the handling necessary to continue proper management of these materials, including repackaging if needed. The uranium inventory would not be dispositioned.

Alternatives analyzed under the proposed action included: Interim Centralized Storage at a Single DOE Site; Interim Centralized Storage at a Single Commercial Site; Partially Consolidated Storage at Several DOE Sites; Partially Consolidated Storage at One Western and One Eastern DOE Site; Partially Consolidated Storage at One Western and One Eastern Commercial Site; and Partially Consolidated Storage by Physical Form.

DOE must be able to transfer small quantities (less than 0.1 MTU) from any one of the potential consolidated or centralized storage sites to a second location (such as a university). This option was considered as a component of each alternative under the proposed action. It was not itself a stand-alone alternative.

ENVIRONMENTAL IMPACTS:

NO ACTION

Under this alternative, the uranium currently stored at the various DOE sites, non-DOE sites, universities, and other commercial locations would remain at those sites. The uranium is currently in various container types, including 55-gallon steel drums, T-hoppers, half-high boxes, and sea-land containers.

Normal Operations. Under normal operations, land use, geology and soils, water resources, cultural resources, and the infrastructure remain unchanged. Air effluents associated with uranium inventory maintenance would be minimal and would remain the same as they are now. Because there is no new construction and there are no effluents from the stored uranium, plant and animal species would not be adversely affected and cultural resources would not be impacted. Some continued maintenance of facilities would be required, and monitoring and surveillance at the current sites would continue. The socioeconomic impact analysis assumes little or no construction activity and continued uranium monitoring by current employees. Under these assumptions, there is no change in expenditure or employment and, consequently, no impact. Even if additional workers were hired for monitoring at each potential centralized or consolidated storage site, they would represent a minimal increase to the large number (several hundred thousand) of wage and salary earners present in counties that contain the larger DOE uranium storage sites. In the absence of important impacts, environmental justice concerns do not arise.

The 3,900 MTU at the 152 locations other than the six DOE locations would remain at these sites. The amount at each individual site is very small and is typically associated with university or other types of research. No substantial environmental impacts are expected from the continued use and/or storage at these locations; however, these sites do not have a long-term mission for uranium storage and expect to ship materials back to DOE when the research work is completed.

Facility Accidents. The highest acute consequences to the public or to a co-located worker are due to a fire or earthquake at PORTS, with aerial dispersion of uranium materials, but are still negligible. This result is based on the large amount of uranium materials currently stored at PORTS (4,400 MTU or ~31% of the total of 14,200 MTU). Acute radiological and toxicological consequences are negligible at all sites.

Accidents at all facilities are expected to cause negligible to low chronic risks to humans and ecological receptors.

Transportation. There are no transportation activities associated with the no action alternative.

PROPOSED ACTION

Normal operations result in no more than negligible acute or chronic consequences and risk at any site under any storage alternative or disposition option. Environmental impacts associated with normal operations vary from alternative to alternative and, occasionally, by site within a given alternative. General handling accidents result in no more than negligible acute or chronic consequences and risk at any site under any

storage alternative or disposition option. Chronic human health and ecological consequences and risk are negligible to low for all sites under all alternatives. The highest transportation consequences and risk are for alternatives that involve moving uranium materials to a western location, either to a commercial site or to INEEL.

Comparison of Alternatives

When comparing the environmental impacts of the various alternatives, the following emerge as general trends:

- There were none-to-minor impacts for all of the alternatives considered and negligible-to-low impacts from the standpoint of facility accidents (fire and seismic) for all the alternatives, while transportation effects for the alternatives generally reflected the extent of material transport associated with the alternative being analyzed.
- The greater the centralization or consolidation of the uranium inventory, the greater the potential for normal operations impacts. Greater centralization or consolidation means that new storage space has to be built, which means accompanying costs and commitment of land, and uranium materials will have to be shipped greater distances with increased risk of accidents.
- The action alternative with the fewest environmental impacts and that is the least expensive (\$7.3M) is "Interim Partially Consolidated Storage at Several DOE Sites." This alternative takes advantage of the current storage of the majority of these DOE sites already. Thus, construction costs and associated environmental impacts would be less than other action alternatives.
- Similarly, the PORTS site would have the fewest environmental impacts and would be the least expensive (\$8.4M) of the DOE facilities considered for interim centralized storage. It should be noted that DOE would be committed to using the existing UMG facility at PORTS; therefore other buildings would not be upgraded and the upgrade costs computed in the PEA for other buildings would not be spent. Only very minor upgrades to the existing storage facility would be needed. PDGP and commercial sites would be the most expensive centralized storage.
- Excess Latent Cancer Fatalities (LCFs) due to transportation and traffic fatalities are minimal for all alternatives but greatest for the interim storage at the single site alternatives. The increase in excess LCFs to the public from radiological exposures during transportation is less than one for all alternatives.
- Western sites would tend to have slightly higher traffic fatalities associated with them than eastern ones due to the larger volumes of uranium materials to be shipped over greater distances.
- Commercial sites would have slightly greater impacts than DOE sites (except for PGDP) when comparing similar alternatives (interim centralized storage at a single DOE site versus a single commercial site and interim partially consolidated storage at two DOE sites versus two commercial sites).

Interim Centralized Storage at a Single Commercial Site Alternative. Considering the combination of normal operations, facility accidents and transportation, the "Interim Centralized Storage at a Single Commercial Site" alternative and the PGDP site for "Interim Consolidated Storage at a Single DOE Site" alternative have the greatest potential for environmental impacts. For normal operations, the western and eastern commercial sites and PGDP have equal impact potential. Any of these sites would have 305 first-year construction workers, 14 new permanent workers, \$12.2M in new construction costs, and seven

acres of land commitment and habitat disturbance. Facility accidents would result in negligible to low acute and chronic risks.

Interim Centralized Storage at a Single DOE Site. Impacts are very similar to the single commercial site alternative discussed above; however, there are some differences in impacts among the DOE sites. Because PORTS has sufficient existing storage space, normal operations impacts, including socioeconomics, would be minimal at this site. Upgrading existing buildings at PORTS would not result in commitments of land or destruction of wildlife habitat that would be necessary at all other DOE sites.

Due to the very small amount of uranium storage space at PGDP, the impacts of normal operations would be almost identical to interim centralized storage at a single commercial site as noted above.

Interim Partially Consolidated Storage at Two Commercial Sites. Because none of the 14,200 MTU uranium inventory is now at these commercial sites, the normal operations impacts associated with this alternative are very similar to those for the "Interim Centralized Storage at a Single Commercial Site" alternative, except that environmental impacts would be shared by the two sites.

Interim Partially Consolidated Storage at Two DOE Sites. Environmental impacts from normal operations would tend to be less than from consolidation at two commercial sites, because some of the uranium inventory is already at INEEL and PORTS. Thus, less construction-related impacts would result. Human health and ecological risks from facility accidents would be the same as for consolidation at two commercial sites.

Interim Partially Consolidated Storage at Several DOE Sites. Because most of the uranium inventory would remain at the six prime DOE locations and only the 3,900 MTU at 152 other sites would be relocated, the normal operations impacts would be substantially less than all the other action alternatives. Additional space requirements, and the impacts associated with construction of this space, would be sharply reduced when compared to the other action alternatives. This alternative most closely resembles the No Action alternative.

CUMULATIVE IMPACTS

Cumulative impacts are impacts associated with the proposed action when combined with other past, present, or reasonably foreseeable future impacts. There are no significant impacts associated with the proposed action under normal operations. When the negligible-to-minor environmental and socioeconomic impacts associated with normal operations (construction of new storage facilities, facilities upgrades, and daily maintenance and surveillance) and any of the action alternatives are added to the baseline environment, cumulative impacts are minor.

For facility accidents, the potential for negligible to low acute consequences and risk, due to either storage area fires or seismic events, exists for the "Interim Centralized Storage at a Single DOE Site" alternative and "Interim Centralized Storage at a Single Commercial Site." Under a major seismic event scenario sufficient to mobilize uranium oxide into the environment, it is reasonable to assume that other material releases and other risks would be posed to workers at the site. Therefore, risks from uranium oxides would be one of several environmental and health risks that workers at the sites would face. For other accidents and other forms of uranium materials, the acute and chronic human health risk and ecological risk are negligible or low.

Due to a small increase in vehicular traffic to transport uranium materials, there would be a slight increase in traffic accidents and fatalities on the nation's highways. These cumulative impacts would be very

minor in comparison to the baseline. Likewise, exposures of the public and workers during uranium transport would increase very slightly the risks of LCFs.

At some time in the future, the uranium inventory would be eventually dispositioned. Various disposition options including commercial processing and domestic sales of the entire inventory, disposition of limited quantities (50 MTU) at research facilities, disposition of 2,500 MTU to other government agencies, and foreign sales of 4,050 MTU may occur. Impacts associated with these options are considered as a part of each of the interim storage alternatives. In addition, potential cumulative impacts (such as temporary storage costs, new construction, and additional labor) could occur should an existing inventory of uranium materials be increased at any of these disposition option locations.

SRS. There is a large inventory (~19,000 MTU) of uranium, mostly oxides, at the SRS, which is not part of the UMG inventory. For an accident risk perspective, cumulative impacts could be important at SRS (due principally to this existing, non-UMG uranium oxide inventory). Centralized storage would add 11,300 MTU to the 2,400 MTU already included in the UMG inventory.

In addition, up to seven acres of site habitat at SRS would be devoted to new construction, removing these acres from current use. This acreage, when considered from a total site perspective, would be a minimal cumulative impact since portions of SRS are undergoing remediation or being dedicated to greater environmental uses.

PDGP. The PDGP site would need the largest amount of new construction including seven acres of permanent habitat disruption. This disruption would occur at a site undergoing ground-disturbing remediation efforts, which also affect wildlife habitat, albeit of low quality in most cases. Because of the small workforce at PDGP, direct construction-related increases in employment would be greatest at this site. Due to declining DOE employment at the site, however, the overall cumulative impact would likely be temporary but beneficial for the regional economy.


PORTS. The PORTS site has an existing inventory of uranium materials. Should the approximately 9,800 MTU of additional inventory evaluated in this EA be added to the existing inventory, then the potential for cumulative impacts due to accidental releases would increase. Since PORTS currently has sufficient existing storage space for the 14,200 MTU, the site has the lowest potential for cumulative impacts due to construction/renovation. However, as noted, DOE would be committed to using the existing UMG storage facility and upgrades to other building for uranium storage for this program would not occur.

INEEL. Like the PDGP site, INEEL would require substantial new construction with associated permanent habitat disruption. This seven acre commitment would occur at a highly developed site undergoing other ground disturbances associated with remediation. This site also has uranium inventory that is not part of the proposed action so cumulative impacts from accidental releases are possible.

Y-12 and ETTP. The two sites at Oak Ridge would also require a commitment of land for new construction. Even though there are also other uranium inventories in Oak Ridge, the physical separation of the two sites lessens the potential for cumulative impacts due to accidental releases.

DETERMINATION: Based on the findings in this PEA, DOE has determined that none of the alternatives under the proposed action to implement a long-term (greater than 20 years) management plan for its inventory of potentially reusable LEU, NU, and DU have potentially significant adverse environmental impacts; thus the proposed action does not constitute a major federal action that would significantly affect the quality of the human environment within the context of the National Environmental Policy Act. Therefore, preparation of an environmental impact statement is not required.

Issued at Oak Ridge, Tennessee, this 16 day of October 2002.


for Michael Holland
Acting Manager
U.S. Department of Energy
Oak Ridge Operations
Oak Ridge, Tennessee